viates. I avoid this disadvantage in a very simple manner by providing a slight friction or retarding action on the eccentric. I utilize for this purpose a friction device in the form of a disk or plug 57 which is carried by the eccentric strap, and which is held yieldingly onto the periphery of the eccentric by a spring 58, both the disk 57 and the spring 58 being contained within a tubular or cylindrical inclosure 59, including a removable cap by which the parts can be assembled or removed.

Having thus described my invention, what I claim is:

1. In a spring starter, a starter shaft, a spring for rotating the shaft, means for establishing driving connection between the spring and shaft comprising ratchet mechanism including a ratchet wheel and a plurality of sets of pawls, and means for operating each set of pawls by which when one of said sets of pawls is in driving engagement with the teeth of the ratchet, the other is ineffective for driving, but becomes effective if the first set of pawls becomes ineffective.

2. In a spring starter, a starter shaft, a spring for rotating the shaft, ratchet mechanism for effecting driving relationship between the spring and shaft comprising a ratchet wheel, and a plurality of sets of pawls, and means for independently controlling the movement of the sets of pawls so that when one of the sets of pawls is moved into driving engagement with the teeth of the ratchet a second set of pawls is ineffective for driving, and if the first becomes disengaged from the teeth the second set of pawls is moved into driving engagement with the teeth.

3. In a spring starter, a starter shaft, a spring for rotating the shaft, ratchet mechanism for effecting driving relationship between the spring and shaft comprising a ratchet wheel and a plurality of sets of pawls, and means for independently moving the sets of pawls into engagement with the teeth of the ratchet, the spacing of the pawls of each set and teeth being such that when one set of pawls engages the end of a tooth, the other set of pawls is out of engagement with the end of a tooth.

4. In a spring starter, a starter shaft, a spring for rotating the shaft, ratchet mechanism for effecting driving relationship between the spring and shaft comprising a ratchet wheel on the shaft, a plurality of sets of pawls adapted to be rotated by the spring, and separate means for positively moving each of the sets of pawls into and out of engagement with the teeth of the ratchet.

5. In a spring starter, a starter shaft, a spring for rotating the shaft, ratchet mechanism for effecting driving relationship between the spring and shaft comprising a ratchet wheel and a plurality of sets of pawls, separate means for positively moving each set of pawls into and out of engagement with the teeth of the ratchet, the spacing of the pawls of each set and of the teeth being such that while one set of pawls is in engagement with the end of a tooth, the other set of pawls is out of engagement therewith.

6. In a spring starter, a starter shaft, a spring adapted to rotate the shaft, an arbor surrounding the shaft and connected to the spring, ratchet mechanism for establishing driving relationship between the arbor and the shaft comprising a ratchet wheel on the shaft, two sets of pawls carried by the arbor, and separate means for positively moving the two sets of pawls into and out of engagement with the teeth of the ratchet.

7. In a spring starter, a starter shaft, a spring adapted to rotate the shaft, an arbor surrounding the shaft and connected to the spring, ratchet mechanism for establishing driving relationship between the arbor and the shaft comprising a ratchet wheel on the shaft, two sets of pawls carried by the arbor, and separate means for positively moving the two sets of pawls into and out of engagement with the teeth of the ratchet, the spacing of the pawls and teeth being such that when one set of pawls is in driving engagement with the teeth of the ratchet, the other set of pawls are out of driving engagement with the teeth of the ratchet.

8. In a spring starter, a starter shaft, a spring for rotating the same, mechanism for winding the spring from the shaft when the latter is rotated by external means, said mechanism including a driving element on the shaft, an eccentric adapted to be rotated by said driving element, said eccentric having a part adapted to be engaged by a part on the driving member, and means by which said parts are retained in driving relationship during the winding operation.

9. In a spring starter, a starter shaft, a spring adapted to rotate the shaft, mechanism for winding the spring comprising an eccentric, a part rotated by the eccentric, means for rotating said eccentric, means operatively connecting the eccentric to the spring for winding purposes, and a friction device engaging said eccentric to cause the same to remain in driving engagement with the means which rotates it.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

JOSEPH A. WILLIAMS.

Witnesses:

E. B. GILCHRIST,

L. I. PORTER.